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REMARKS: Serial No. 09/611,920, filed 07/07/2000.

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PATENT APPLICATION

ATTORNEY DOCKET NO. 200301685-1



IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): David J. LINDNER

Confirmation No.: 7765

Application No.: 09/611,920

Examiner: R. Singh

Filing Date: 07/07/2000

Group Art Unit: 2176

Title: METHOD AND APPARATUS FOR PROVIDING ENHANCED ACCESS TO A LIGHTWEIGHT
DIRECTORY ACCESS PROTOCOL (LDAP) DIRECTORY SERVER

Mail Stop Appeal Brief-Patents
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TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 12/09/2004.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) \$500.00

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

() (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

| | |
|------------------|-----------|
| () one month | \$110.00 |
| () two months | \$430.00 |
| () three months | \$880.00 |
| () four months | \$1630.00 |

() The extension fee has already been filed in this application.

(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of \$500.00. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.18 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

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Number of pages: 30

Typed Name: Christina L. Paz

Respectfully submitted,

David J. LINDNER

By 

Mark E. Scott

Attorney/Agent for Applicant(s)

Reg. No. 43,100

Date: 12/09/2004

DEC 09 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | | | |
|-------------|---------------------------|---|-------------------|-------------|
| Appellant: | David J. LINDNER | § | Confirmation No.: | 7765 |
| Serial No.: | 09/611,920 | § | Group Art Unit: | 2176 |
| Filed: | 07/07/2000 | § | Examiner: | R. Singh |
| For: | Method And Apparatus | § | Docket No.: | 200301685-1 |
| | For Providing Enhanced | § | | |
| | Access To A Lightweight | § | | |
| | Directory Access Protocol | § | | |
| | (LDAP) Directory Server | § | | |

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
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PO Box 1450
Alexandria, VA 22313-1450

Date: December 9, 2004

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal is being filed concurrently herewith.

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Reply to Office action of September 10, 2004

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I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas, through its merger with Compaq Computer Corporation (CCC) that owned Compaq Information Technologies Group, L.P. (CITG). The assignment from the CCC to CITG was recorded on November 3, 2004, at Reel/Frame 015332/0477. The Change of Name document from CITG to HPDC was recorded on November 3, 2004, at Reel/Frame 015332/0427.

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II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

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III. STATUS OF THE CLAIMS

Originally filed claims: 1-20.
Added claims: 21-44.
Cancelled claims: 22, 28 and 34
Presently pending claims: 1-21, 23-27, 29-33 and 35-44
Presently appealed claims: 1-21, 23-27, 29-33 and 35-44

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IV. STATUS OF THE AMENDMENTS

Appellant filed a Response to the Office action dated September 10, 2004, the Response filed December 7, 2004, which amended the specification, amended claims 21, 27, 33 and 39, and cancelled claims 22, 28 and 34. The claims as amended are reflected in the attached Claims Appendix.

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V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The Specification is directed to a method and apparatus for providing enhanced access to a directory server.¹ Some of the illustrative embodiments are a method for accessing a directory server, the method comprising simultaneously maintaining a first plurality of connections between the directory server and a caching daemon,² determining if an application is requesting information from the directory server,³ determining if the requested information is stored in the caching daemon in response to determining that the application has requested information,⁴ and sending the requested information to the application.⁵

Other illustrative embodiments are apparatus comprising a directory server for storing information,⁶ and a caching daemon maintaining a plurality of connections to the directory server.⁷ The caching daemon is configured to determine if an application is requesting information from the directory server,⁸ determine if the requested information is stored within the caching daemon,⁹ and send the requested information to the application.¹⁰

Other illustrative embodiments, *claimed in a means-plus-function format*, are an apparatus for accessing a directory server comprising a means for establishing a first plurality of simultaneously running connections¹¹ between the directory server and a caching daemon, means for determining if an application is requesting information from the directory server,¹² means for determining if the

¹ Specification Title (as amended August 10, 2004).

² Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

³ Specification Page 11, lines 15-16.

⁴ Specification Page 11, lines 16-20.

⁵ Specification Page 11, lines 22-23; Page 12, lines 6-8.

⁶ Specification Page 7, lines 12-21.

⁷ Specification Page 8, lines 2-7.

⁸ Specification Page 10, lines 7-10.

⁹ *Id.*

¹⁰ Specification Page 10, lines 10-12, lines 18-19.

¹¹ Specification Page 8, lines 2-7; Page 9, lines 1-5.

¹² Specification Page 10, lines 7-10.

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requested information is stored in the caching daemon in response to determining that the application has requested information,¹³ and means for sending the requested information to the application.¹⁴

Other illustrative embodiments are a caching daemon comprising a data cache adapted to store a subset of information from a directory server,¹⁵ and a controller.¹⁶ The controller is adapted to establish and maintain a first plurality of connections to the directory server,¹⁷ determine if an application is requesting information from the directory server,¹⁸ determine if the requested information is stored in the data cache,¹⁹ and send the requested information to the application.²⁰

Other illustrative embodiments are a method for accessing a directory server comprising simultaneously maintaining a plurality of connections between the directory server and a lightweight directory access protocol ("LDAP") caching daemon,²¹ determining if an application is requesting information from the directory server,²² determining if the requested information is stored in the LDAP caching daemon in response to determining that the application has requested information,²³ and sending the requested information to the application.²⁴

Other illustrative embodiments are an apparatus comprising a directory server for storing information,²⁵ and a lightweight directory access protocol

¹³ *Id.*

¹⁴ Specification Page 10, lines 10-12, lines 18-19.

¹⁵ Specification Page 10, lines 5-7.

¹⁶ Specification Page 10, lines 7-10.

¹⁷ Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

¹⁸ Specification Page 10, lines 7-10.

¹⁹ *Id.*

²⁰ Specification Page 10, lines 10-19.

²¹ Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

²² Specification Page 11, lines 15-16.

²³ Specification Page 11, lines 16-20.

²⁴ Specification Page 11, lines 22-23; Page 12, lines 6-8.

²⁵ Specification Page 7, lines 12-21.

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("LDAP") caching daemon.²⁶ The LDAP caching daemon is configured to maintain a plurality of connections to the directory server,²⁷ determine if an application is requesting information from the directory server,²⁸ determine if the requested information is stored within the LDAP caching daemon,²⁹ and send the requested information to the application.³⁰

Other illustrative embodiments are a lightweight directory access protocol ("LDAP") caching daemon comprising a data cache that stores a subset of information from a directory server,³¹ and a controller configured to establish and maintain a first plurality of connections to the directory server,³² determine if an application is requesting information from the directory server,³³ determine if the requested information is stored in the data cache,³⁴ and send the requested information to the application.³⁵

Other illustrative embodiments are a method for accessing a directory server comprising continuously maintaining a plurality of connections between the directory server and a lightweight directory access protocol caching ("LDAP") caching daemon,³⁶ receiving from an application a request for information from the directory server,³⁷ using a connection of the plurality of connections to retrieve

²⁶ Specification Page 8, lines 2-7.

²⁷ Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

²⁸ Specification Page 10, lines 7-10.

²⁹ *Id.*

³⁰ Specification Page 10, lines 10-12, lines 18-19.

³¹ Specification Page 10, lines 5-7.

³² Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

³³ Specification Page 10, lines 7-10.

³⁴ *Id.*

³⁵ Specification Page 10, lines 10-19.

³⁶ Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

³⁷ Specification Page 11, lines 15-18.

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the requested information from the directory server,³⁸ and sending the requested information to the application.³⁹

Finally, other illustrative embodiments are a lightweight directory access protocol ("LDAP") caching daemon comprising a data cache that stores a subset of information from a directory server,⁴⁰ and a controller configured to establish and maintain a plurality of connections to a directory server,⁴¹ receive from an application a request for information from the directory server,⁴² use a connection of the plurality of connections to retrieve the requested information from the directory server,⁴³ and send the requested information to the application.⁴⁴

³⁸ Specification Page 10, lines 14-16.

³⁹ Specification Page 11, lines 22-23; Page 12, lines 6-8.

⁴⁰ Specification Page 10, lines 5-7.

⁴¹ Specification Page 8, lines 4-7; Page 9, lines 1-5; Page 11, lines 11-13.

⁴² Specification Page 10, lines 7-10.

⁴³ Specification Page 10, lines 14-16.

⁴⁴ Specification Page 10, lines 10-19.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-44 are unpatentable over an article title "Using LDAP Directory Caches," authored by Sophie Cluet, Olga Kapitakaia, and Divesh Srivastava (hereinafter the Cluet article), in view of Luotonen (U.S. Pat. No. 5,864,852).

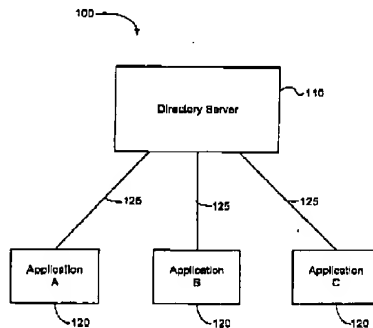
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VII. ARGUMENT

A. Claims 1-20

Claims 1-20 stand rejected as allegedly obvious over the Cluet article in view of Luotonen. Claim 1 is representative of this group of claims. This grouping is for purposes of this appeal only, and should not be construed to mean the patentability of any of the claims may be determined, in later actions before a court, based on the grouping. Rather, the presumption of 35 U.S.C. § 282 shall apply to each claim individually.

Appellant's Background section and corresponding related-art Figure 1 (reproduced immediately below) note a difficulty in the related art.



With regard to Figure 1, Appellant's Background section states:

Turning now to the drawings, and specifically referring to Figure 1, a system 100 for providing LDAP directory server access to a plurality of client server applications is shown in accordance with the prior art. Typically, when a client server application 120 desires to access data from a directory server 110, the application 120 establishes a direct connection 125 to the directory server 110 through a binding operation. ... Upon successfully establishing the connection 125 with the directory server 110, the application 120 then retrieves the desired data from the directory server 110 by performing a search operation. After retrieving this desired data, the client server application 120 may then perform an unbind operation to terminate

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the protocol session between the client server application 120 and the directory server 110.⁴⁵

A drawback currently encountered in LDAP, however, is that it requires each client to bind directly to the directory server 110 before being able to perform a request for information from the LDAP directory. ... As a result of this additional load, the directory server 110 suffers substantial degradation in performance for data retrieval.⁴⁶

The authors of the Cluet article are apparently cognizant of the degradation in performance associated with repeated binding/unbinding, and thus the Cluet article is directed to using LDAP directory caches.⁴⁷ However, the caching described in the Cluet article is performed by a client machine, and is apparently to reduce client server communications.

There has been much recent interest in the area of **client caching** to efficiently handle declarative queries using semantic information. The reasons for using the semantic information include better use of the client cache, more autonomy of the client, and reduced client server communication.⁴⁸

The Cluet article's "client" machines appear to coincide with client server applications 120 of Appellant's Figure 1 above. The Cluet article is silent as to the number of connections, and how long they are maintained, as between a caching client machine and the server.

Luotonen is directed to a proxy server caching mechanism that provides a file directory structure and mapping mechanism within the file directory structure.⁴⁹ With regard to the connections between the proxy server and remote server, however, Luotonen specifically teaches that these connections are only temporarily maintained to perform up-to-date checks.

⁴⁵ Specification Page 3, line 15 through Page 4, line 7.

⁴⁶ Specification page 4, lines 9-15.

⁴⁷ Cluet article Title.

⁴⁸ Cluet article, page 273 (emphasis added).

⁴⁹ Luotonen Title.

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When it is desired to perform up-to-date checks, the proxy server connects to the remove server and requests that the document in question be sent, but only if the document has been modified since the most recently logged modification date/time.⁶⁰

Illustrative claim 1, by contrast, specifically recites, "simultaneously maintaining a first plurality of connections between the directory server and a caching daemon; determining if an application is requesting information from the directory server; determining if the requested information is stored in the caching daemon in response to determining that the application has requested information; and sending the requested information to the application." The Cluet article and Luotonen fail to teach or fairly suggest "simultaneously maintaining a first plurality of connections between the directory server and a caching daemon." The Office action dated September 10, 2004 states, "It is evident from Cluet's disclosure that he teaches maintaining a connection between the directory server and the caching daemon." This position does not follow from the teaching of the Cluet article. The Cluet article specifically teaches reducing client server communications.⁶¹ It is wholly inconsistent to allege a teaching of the Cluet article to, on the one hand, perform client caching to reduce client server communications (which reduces need for the connections), and yet on the other hand to allege that the Cluet article teaches maintaining those same connections. Appellant submits that in actuality the Cluet article teaches away from simultaneously maintaining a plurality of connections based on the teachings of reducing client server communications. If the teachings of reducing communications are discounted by the Board, then the Cluet article is at best wholly ambiguous as to the state of the connections so as not to support the position of the Office action.

As quoted above, Luotonen expressly teaches away from maintaining the connections. The Office action attempts to rely on Luotonen's Figure 1 for an

⁶⁰ Luotonen Col. 6, line 66 through Col. 7, line 4 (emphasis added).

⁶¹ Cluet article, page 273.

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alleged teaching of maintaining the connections,⁵² but the figure does not support the position of the Office action, especially since the line of the figure relied upon is dashed.⁵³ Likewise, with the teachings regarding a "proxy server cache structure that stores and accesses documents in an optimal manner...",⁵⁴ and "the ability to locate documents in a cache without latency induced by long path names,"⁵⁵ it does not follow from these features that a plurality of connections should be maintained. Unlike the position of the Office action, however, Appellant's position that Luotonen teaches away simultaneously maintaining connections is support by the text of Luotonen.⁵⁶ Thus, the Cluet article taken with Luotonen does not teach or fairly suggest all the limitations of illustrative claim 1.

Based on the foregoing, Appellant respectfully requests that the rejections in the Office action of this group of claims be reversed, and the case set for issue.

B. Claims 21, 23-27, 29-33 and 35-44

Claims 21, 23-27, 29-33 and 35-44 stand rejected as allegedly obvious over the Cluet article in view of Luotonen. Claim 21 is representative of this group of claims. This grouping is for purposes of this appeal only, and should not be construed to mean the patentability of any of the claims may be determined, in later actions before a court, based on the grouping. Rather, the presumption of 35 U.S.C. § 282 shall apply to each claim individually.

The Cluet article is directed to using LDAP directory caches.⁵⁷ However, the caching described in the Cluet article is performed by a client machine, and is to reduce client server communications.⁵⁸ The Cluet article's "client" machines

⁵² Office action dated September 10, 2004, paragraph spanning pages 10 and 11.

⁵³ Luotonen's Figure 1 (dashed line between the proxy server 14 and the remote server 16, and note how the lines between the client 12 and proxy server 14 are not dashed).

⁵⁴ Office action dated September 10, 2004, paragraph spanning pages 10 and 11.

⁵⁵ *Id.* (emphasis added).

⁵⁶ Luotonen Col. 6, line 66 through Col. 7, line 4.

⁵⁷ Cluet Article Title.

⁵⁸ Cluet article, page 273.

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appear to coincide with client server applications 120 of Appellant's Figure 1 above. The Cluet article is silent as to the number of connections, and how long they are maintained, as between a caching client machine and the server.

Luotonen is directed to a proxy server caching mechanism that provides a file directory structure and mapping mechanism within the file directory structure.⁵⁹ The apparent advantage of Luotonen is that each long URL is converted to a fingerprint used to map the URL in the proxy server.⁶⁰ Luotonen does not appear to teach any interchangeability between the URL fingerprinting and LDAP hierarchical tree structure.⁶¹ As for connections between the proxy server and remote server, Luotonen specifically teaches that these connections are only temporarily maintained to perform up-to-date checks.⁶²

Illustrative claim 21, by contrast, specifically recites, **"simultaneously maintaining a plurality of connections between the directory server and a lightweight directory access protocol ("LDAP") caching daemon; determining if an application is requesting information from the directory server; determining if the requested information is stored in the LDAP caching daemon in response to determining that the application has requested information; and sending the requested information to the application."** The Cluet article and Luotonen fail to teach or fairly suggest "simultaneously maintaining a plurality of connections," and also fail to teach or fairly suggest a "lightweight directory access protocol ("LDAP") caching daemon."

As for "simultaneously maintaining a plurality of connections," the Office action dated September 10, 2004 states, "It is evident from Cluet's disclosure that he teaches maintaining a connection between the directory server and the caching daemon." This position does not follow from the teaching of the Cluet article. The Cluet article specifically teaches reducing client server

⁵⁹ Luotonen Title.

⁶⁰ Luotonen Abstract.

⁶¹ With regard to the LDAP hierarchical tree structure, see Specification Page 3, lines 1-13.

⁶² Luotonen Col. 6, line 66 through Col. 7, line 4.

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communications.⁶³ It is wholly inconsistent to allege a teaching of the Cluet article to, on the one hand, perform client caching to reduce client server communications (which reduces need for the connections), and yet on the other hand to allege that the Cluet article teaches maintaining those same connections. Appellant submits that in actuality the Cluet article teaches away from simultaneously maintaining a plurality of connections based on the teachings of reducing client server communications. If the teachings of reducing communications are discounted by the Board, then the Cluet article is at best wholly ambiguous as to the state of the connections so as not to support the position of the Office action.

As quoted above, Luotonen expressly teaches away from maintaining the connections. The Office action attempts to rely on Duotone's Figure 1 for an alleged teaching of maintaining the connections,⁶⁴ but figure does not support the position.⁶⁵ Likewise, with the teachings regarding a "proxy server cache structure that stores and accesses documents in an optimal manner....,"⁶⁶ and "the ability to locate documents in a cache without latency induced by long path names,"⁶⁷ it does not follow from these features that a plurality of connections should be maintained. Unlike the position of the Office action, however, Appellant's position that Luotonen teaches away from simultaneously maintaining a plurality of connections is support by the text of Luotonen.⁶⁸ For this reason alone the rejection of the Office action should be overturned.

As for a "lightweight directory access protocol ("LDAP") caching daemon," the Cluet article teaches caching on the client machine.⁶⁹ Luotonen teaches a

⁶³ Cluet article, page 273.

⁶⁴ Office action dated September 10, 2004, paragraph spanning pages 10 and 11.

⁶⁵ Luotonen's Figure 1 (dashed line between the proxy server 14 and the remote server 16, and note how the lines between the client 12 and proxy server 14 are not dashed).

⁶⁶ Office action dated September 10, 2004, paragraph spanning pages 10 and 11.

⁶⁷ *Id.* (emphasis added).

⁶⁸ Luotonen Col. 6, line 88 through Col. 7, line 4.

⁶⁹ Cluet article, page 273.

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proxy server for URLs.⁷⁰ Even if the Cluet article and Luotonen are properly considered together (which Appellant does not admit), the Cluet article and Luotonen fail to teach or suggest that the URL proxy server could or should be used as an LDAP caching daemon, that LDAP caching should be anywhere other than the client machine, or that an LDAP caching daemon should "simultaneously maintaining a plurality of connections between the directory server and" the LDAP caching daemon. For these additional reasons, the rejection of the Office actin should be overturned.

Based on the foregoing, Appellant respectfully requests that the rejections in the Office action of this group of claims be reversed, and the case set for issue.

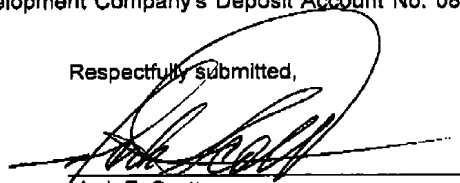
⁷⁰ Luotonen Title.

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VIII. CONCLUSION

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,



Mark E. Scott
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IX. CLAIMS APPENDIX

1. (Previously presented) A method for accessing a directory server, the method comprising:

simultaneously maintaining a first plurality of connections between the directory server and a caching daemon;
determining if an application is requesting information from the directory server;
determining if the requested information is stored in the caching daemon in response to determining that the application has requested information; and
sending the requested information to the application.

2. (Original) The method of claim 1, wherein determining if an application is requesting information from the directory server further comprises:

establishing a second connection between the application and the caching daemon; and
receiving a request for information from the application over the second connection at the caching daemon.

3. (Original) The method of claim 1, further comprising:

retrieving the requested information from the caching daemon in response to determining that the caching daemon has the information stored therein.

4. (Original) The method of claim 1, further comprising:

retrieving the requested information from the directory server in response to determining that the caching daemon has not previously stored the information.

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5. (Original) The method of claim 4, further comprising:
storing the information retrieved from the directory server at the caching daemon.
6. (Previously presented) An apparatus, comprising:
a directory server for storing information; and
a caching daemon maintaining a plurality of connections to the directory server, the caching daemon configured to determine if an application is requesting information from the directory server, determine if the requested information is stored within the caching daemon; and send the requested information to the application.
7. (Original) The apparatus of claim 6, wherein the caching daemon is further adapted to establish a second connection with the application and receive a request for information from the application over the second connection.
8. (Original) The apparatus of claim 6, wherein the caching daemon comprises:
a data cache adapted to store a subset of the information stored in the directory server; and
wherein the caching daemon is further adapted to retrieve the requested information from the data cache in response to determining that the requested information is part of the subset of information stored therein.
9. (Original) The apparatus of claim 6, wherein the caching daemon is further adapted to retrieve the requested information from the directory server in response to determining that the requested information is not stored within the data cache.

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10. (Original) The apparatus of claim 9, wherein the caching daemon is further adapted to store the requested information retrieved from the directory server in the data cache.

11. (Original) An apparatus for accessing a directory server, the apparatus comprising:

- means for establishing a first plurality of simultaneously running connections between the directory server and a caching daemon;
- means for determining if an application is requesting information from the directory server;
- means for determining if the requested information is stored in the caching daemon in response to determining that the application has requested information; and
- means for sending the requested information to the application.

12. (Original) The method of claim 11, wherein the means for determining if an application is requesting information from the directory server further comprises:

- means for establishing a second connection between the application and the caching daemon; and
- means for receiving a request for information from the application over the second connection at the caching daemon.

13. (Original) The method of claim 11, further comprising:

- means for retrieving the requested information from the caching daemon in response to determining that the caching daemon has the information stored therein.

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14. (Original) The method of claim 11, further comprising:
means for retrieving the requested information from the directory server in response to determining that the caching daemon has not previously stored the information.
15. (Original) The method of claim 14, further comprising:
means for storing the information retrieved from the directory server at the caching daemon.
16. (Previously presented) A caching daemon, comprising:
a data cache adapted to store a subset of information from a directory server; and
a controller adapted to establish and maintain a first plurality of connections to the directory server, determine if an application is requesting information from the directory server, determining if the requested information is stored in the data cache, and send the requested information to the application.
17. (Original) The caching daemon of claim 16, wherein the controller is further adapted to establish a second connection to the application and receive a request for information from the application over the second connection.
18. (Original) The caching daemon of claim 16, wherein the controller is further adapted to retrieve the requested information from the data cache in response to determining that the data cache has the information stored therein.
19. (Original) The caching daemon of claim 16, wherein the controller is further adapted to retrieve the requested information from the directory server in response to determining that the data cache does not have the information stored therein.

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20. (Original) The caching daemon of claim 19, wherein the controller is further adapted to store the information retrieved from the directory server at the data cache.

21. (Previously presented) A method for accessing a directory server, the method comprising:

- simultaneously maintaining a plurality of connections between the directory server and a lightweight directory access protocol ("LDAP") caching daemon;
- determining if an application is requesting information from the directory server;
- determining if the requested information is stored in the LDAP caching daemon in response to determining that the application has requested information; and
- sending the requested information to the application.

22. (Cancelled).

23. (Previously presented) The method of claim 21, wherein determining if an application is requesting information from the directory server further comprises:

- establishing a connection between the application and the LDAP caching daemon; and
- receiving a request for information from the application over the connection at the LDAP caching daemon.

24. (Previously presented) The method of claim 21, further comprising:
retrieving the requested information from the LDAP caching daemon in response to determining that the LDAP caching daemon has the information stored therein.

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25. (Previously presented) The method of claim 21, further comprising:
retrieving the requested information from the directory server in response
to determining that the LDAP caching daemon has not previously
stored the information.
26. (Previously presented) The method of claim 25, further comprising:
storing the information retrieved from the directory server at the LDAP
caching daemon.
27. (Previously presented) An apparatus, comprising:
a directory server for storing information; and
a lightweight directory access protocol ("LDAP") caching daemon, the
LDAP caching daemon configured to maintain a plurality of
connections to the directory server, determine if an application is
requesting information from the directory server, determine if the
requested information is stored within the LDAP caching daemon;
and send the requested information to the application.
28. (Cancelled).
29. (Previously presented) The apparatus of claim 27, wherein the LDAP
caching daemon is further configured to establish a connection with the
application and receive a request for information from the application over the
connection.
30. (Previously presented) The apparatus of claim 27, wherein the LDAP
caching daemon comprises:
a data cache adapted to store a subset of the information stored in the
directory server; and
wherein the LDAP caching daemon is further configured to retrieve the
requested information from the data cache in response to

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determining that the requested information is part of the subset of information stored therein.

31. (Previously presented) The apparatus of claim 27, wherein the LDAP caching daemon is further configured to retrieve the requested information from the directory server in response to determining that the requested information is not stored within the data cache.

32. (Previously presented) The apparatus of claim 31, wherein the LDAP caching daemon is further configured to store the requested information retrieved from the directory server in the data cache.

33. (Previously presented) A lightweight directory access protocol ("LDAP") caching daemon, comprising:

- a data cache that stores a subset of information from a directory server;
- and

- a controller configured to establish and maintain a first plurality of connections to the directory server, determine if an application is requesting information from the directory server, determine if the requested information is stored in the data cache, and send the requested information to the application.

34. (Cancelled).

35. (Previously presented) The LDAP caching daemon of claim 33, wherein the controller is further configured to establish a connection to the application and receive a request for information from the application over the connection.

36. (Previously presented) The LDAP caching daemon of claim 33, wherein the controller is further configured to retrieve the requested information from the data cache if the data cache has the information stored therein.

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37. (Previously presented) The LDAP caching daemon of claim 33, wherein the controller is further configured to retrieve the requested information from the directory server if the data cache does not have the information stored therein.

38. (Previously presented) The LDAP caching daemon of claim 37, wherein the controller is further configured to store the information retrieved from the directory server at the data cache.

39. (Previously presented) A method for accessing a directory server, the method comprising:

continuously maintaining a plurality of connections between the directory server and a lightweight directory access protocol caching ("LDAP") caching daemon;

receiving from an application a request for information from the directory server;

using a connection of the plurality of connections to retrieve the requested information from the directory server; and

sending the requested information to the application.

40. (Previously presented) The method of claim 39, further comprising: retrieving the requested information from the LDAP caching daemon if the requested information is stored in the LDAP caching daemon, and wherein using a connection further comprises using the connection if the requested information is not stored in the LDAP caching daemon.

41. (Previously presented) The method of claim 39, further comprising: storing the information retrieved from the directory server at the LDAP caching daemon.

42. (Previously presented) A lightweight directory access protocol ("LDAP") caching daemon, comprising:

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a data cache that stores a subset of information from a directory server;
and
a controller configured to establish and maintain a plurality of connections to a directory server, receive from an application a request for information from the directory server, use a connection of the plurality of connections to retrieve the requested information from the directory server, and send the requested information to the application.

43. (Previously presented) The LDAP caching daemon of claim 42, wherein the controller is further configured to retrieve the requested information from the data cache if the requested information is stored in the data cache, and to use the connection if the requested information is not stored in the data cache.

44. (Previously presented) The LDAP caching daemon of claim 42, wherein the controller is further configured to store the information retrieved from the directory server at the LDAP caching daemon.